

AMENDMENTS TO THE CLAIMS:

Please add Claims 21 through 24 as follows:

1. (Cancelled)

2. (Previously Presented) An aberration changing optical system for changing an aberration, said aberration changing optical system comprising:

an optical element having different refracting powers in two orthogonal directions or having a refracting power in one direction of two orthogonal directions and no refracting power in the other of the two orthogonal directions, said optical element being rotatable about a rotational axis, which is an optical axis of said optical system, and being tiltable relative to the optical axis.

3. (Previously Presented) An aberration changing optical system according to Claim 2, wherein said aberration changing optical system comprises a plurality of said optical elements, and

wherein one of said plurality of optical elements is used selectively to change the aberration.

4. (Previously Presented) An aberration changing optical system according to Claim 2, wherein said aberration changing optical system comprises a pair of said optical elements, and

wherein said pair of optical elements are made rotatable and tilttable integrally and further tilttable in mutually opposite directions.

5. (Previously Presented) An aberration changing optical system according to Claim 2, further comprising a parallel flat plate being rotatable about the optical axis of said optical system and tilttable relative to the optical axis, integrally with the optical element, said parallel flat plate further being tilttable in an opposite direction to said optical element.

6. (Previously Presented) An aberration changing optical system according to Claim 2, wherein said optical element is mainly composed of a transparent material of one of quartz and fluorite.

7. (Previously Presented) An aberration changing optical system according to Claim 2, wherein the or each surface of said optical element, having a refracting power, has a refractive power not greater than $3 \times 10^{-7} \text{ mm}^{-1}$.

8. (Previously Presented) A projection system, comprising:
a projection optical system; and

an aberration changing optical system as recited in Claim 2, for correcting aberration produced in said projection optical system.

9. (Previously Presented) A projection exposure apparatus, comprising:
an illumination system; and
a projection system for projecting a pattern of a mask onto a substrate in cooperation with said illumination system, said projection system including a projection optical system and an aberration changing optical system, as recited in Claim 2, for correcting aberration produced in said projection optical system.

10. (Previously Presented) A device manufacturing method, comprising:
a process for transferring a device pattern onto a substrate by use of a projection exposure apparatus as recited in Claim 9.

11-20. (Cancelled)

21. (New) A projection exposure apparatus having a projection optical system for projecting a pattern of a mask onto a substrate, said apparatus comprising:
a correcting optical system provided in said projection optical system, for correcting a difference between longitudinal and lateral magnifications, an axial astigmatism, and an axial comatic aberration,

wherein said correcting optical system includes a transparent flat parallel plate and a transparent optical element having at least one of a diffractive surface, a cylindrical surface, and a toric surface, and

wherein both of said transparent flat parallel plate and said transparent optical element are tiltable relative to an optical axis and rotatable about the optical axis.

22. (New) A projection exposure apparatus having a projection optical system for projecting a pattern of a mask onto a substrate, said apparatus comprising:

a correcting optical system provided in said projection optical system, for correcting a difference between longitudinal and lateral magnifications, an axial astigmatism, and an axial comatic aberration,

wherein said correcting optical system includes first and second transparent optical elements each having at least one of a diffractive surface, a cylindrical surface, and a toric surface, and

wherein both of said first and second transparent optical elements are tiltable relative to an optical axis and rotatable about the optical axis.

23. (New) A projection exposure apparatus according to Claim 22, wherein said first and second transparent optical elements are relatively rotatable relative to each other.

24. (New) A device manufacturing method, comprising the steps of:
exposing a wafer with a device pattern, by use of an exposure apparatus as recited
in any one of Claims 21-23; and
developing the exposed wafer.